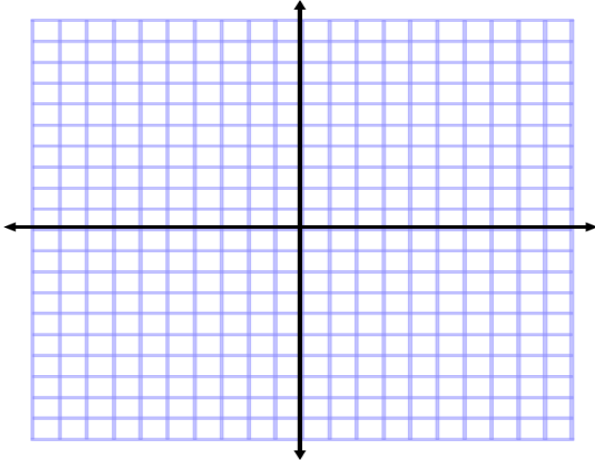


Name: _____ Due Date: Thursday, November 20th

Practice Quest: Linear Inequalities and Current/Wind Word Problem

- 1. Please graph the linear inequality.**
 $x - 4y > -4$

Test Points: You must test TWO points (one on each side of the boundary line).



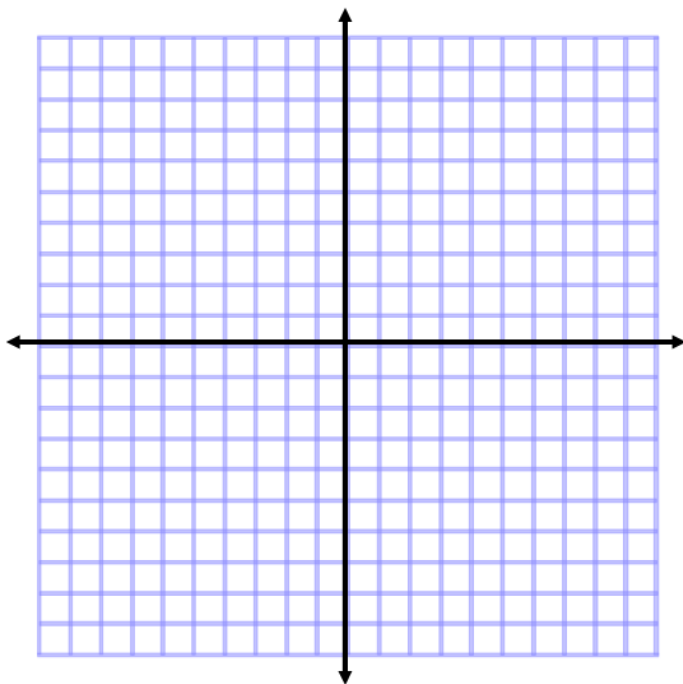
Test: (__, __)

Test: (__, __)

- 2. Please graph the system of linear inequalities. BE CLEAR AS TO WHERE THE SOLUTION ZONE IS.**
 $y > x - 6$ and $2x + 3y \leq -6$

Test Points: You must test one point for each inequality. Show your work.

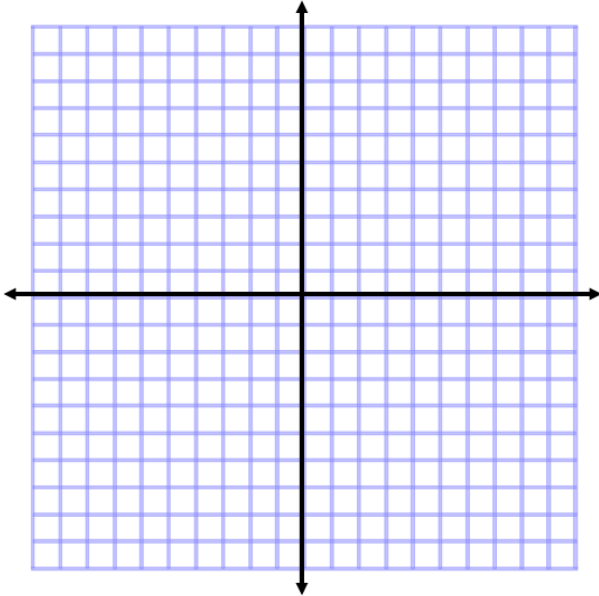
Test: (____, ____)



Test: (__, __)

3. Please graph the system of linear inequalities.
BE CLEAR AS TO WHERE THE SOLUTION ZONE IS.

$$y > -\frac{1}{2}x + 4 \text{ and } y < -\frac{1}{2}x - 2$$



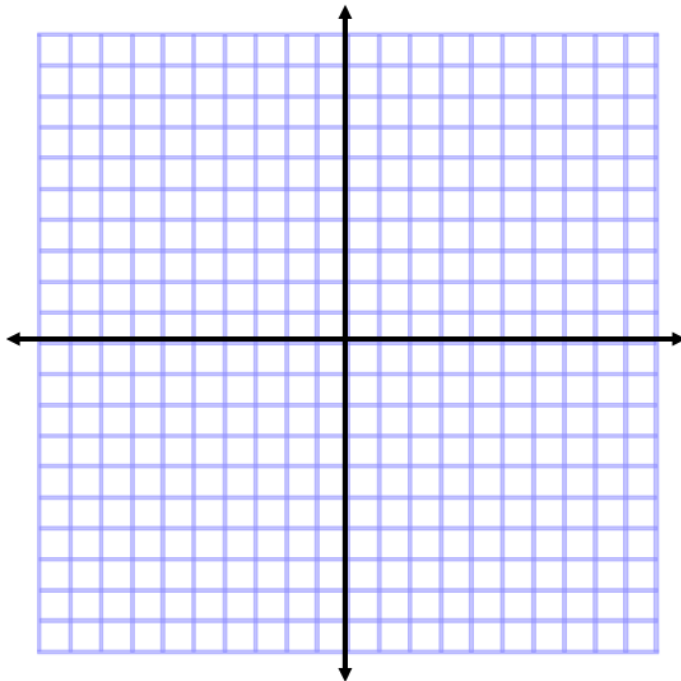
Test Points: You must test one point for each inequality. Show your work.

Test: (____, ____)

Test: (____, ____)

4. Please graph the system of linear inequalities.
BE CLEAR AS TO WHERE THE SOLUTION ZONE IS.

$$x \geq -2 \text{ and } y < 1$$



Test Points: You must test one point for each inequality. Show your work.

Test: (____, ____)

Test: (____, ____)

5. Please answer in complete sentences using algebraic terms. Echo the prompt and avoid vague words.

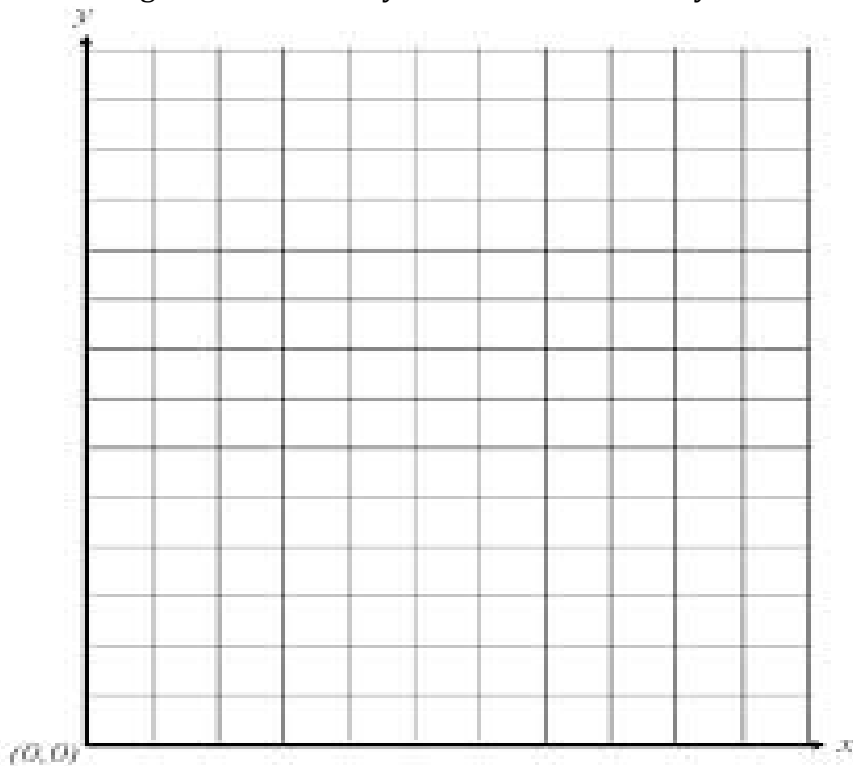
a. When solving a system of linear inequalities, where does the solution lie?

b. Name one point that lies in the solution zone of $x - y < 7$ and $y \geq x$ and one that does not lie in the solution zone. Be sure to be clear which is which.

c. Given the inequality: $y > 5x + 6$, is the boundary line $y = 5x + 6$ part of the solution to the inequality? Explain.

6. Thomas wants to make at least one hundred and fifty dollars selling raffle tickets. He sells raffle tickets for a Nationals game for five dollars per ticket and raffles tickets for a Nationals gift basket for two dollars per ticket.

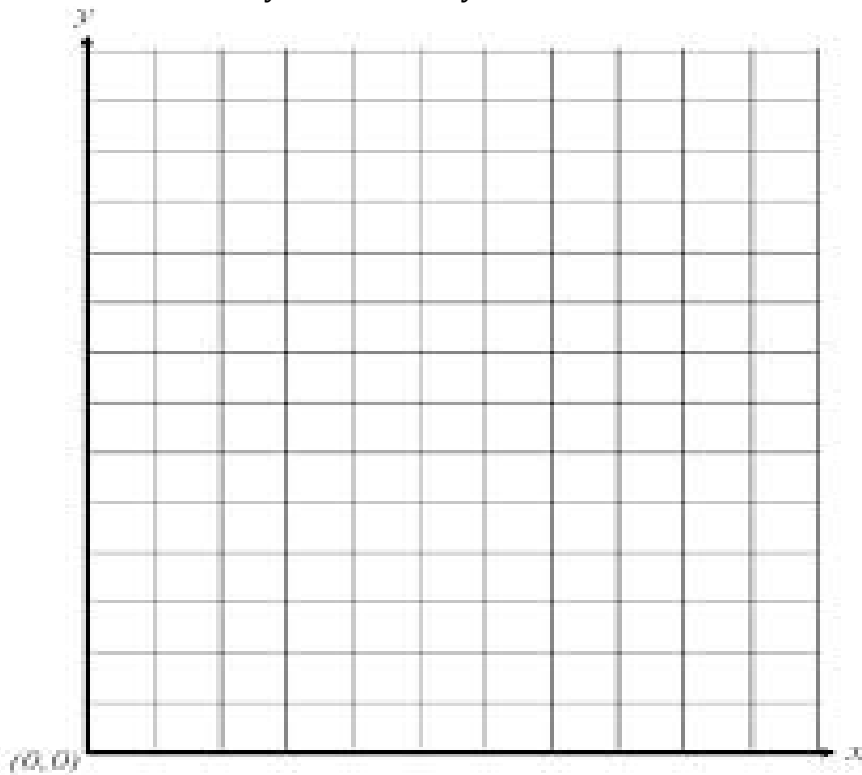
- Define variables for the different types of raffle tickets.
- Write an inequality that describes the situation.
- Graph the inequality. Graph the tickets for the game on the x axis and tickets for the gift basket on the y-axis. Be sure to label your axes and your increments.



- Using your graph as a guide, can Thomas sell twenty-five of each type of raffle ticket and reach his goal? Explain your answer USING YOUR GRAPH as evidence.

7. Kai is designing a ballet dance studio. She wants a barre around the entire perimeter of the main rectangular ballet room. Kai has enough barre material for at most eighty feet. She wants the width of the room to be no more than twenty-feet.

- b. Define variables for the length and the width of Kai's baller room.
- c. Write two inequalities that describes the situation.
- d. Graph the inequality. Graph the width on the x-axis and length on the y-axis. Be sure to label your axes and your increments.



- e. Using your graph as a guide, list two possible length and width combinations for Kai's ballet room. Explain your answer USING YOUR GRAPH as evidence.

8. Bjorn and Julia are paddling a canoe along the Potomac River. They first paddle upstream for twenty-four miles and the trip takes them eight hours. The twenty-four miles back downstream takes them six hours. What was their paddling speed? the speed of the current? (Assume they paddle at the same rate and that the current is the same.)

a. Define variables that make sense for the situation.

b. Write a system of linear equations.

c. Solve the system. Note: you must solve this problem algebraically, using a system.

d. Check your work via substitution and reality.

Substitution Check

Reality Check

e. Write your answers with labels.

